

RESEARCH QUESTION

How do different LLMs (Large Language Models) or chatbots respond to emotional challenges?

HYPOTHESIS

That all the LLMs in the experiment will have a **positive response to user-posed emotional scenarios** (with an overall effectiveness score of 3 or higher). It was also predicted that ChatGPT would outperform the other two chatbots.

BACKGROUND

Teens and AI Access

- Nearly all U.S. teens (95%) have or have access to a smartphone
- Average child gets it by 8.5 years old

AI in Mental Health

- For American youth (ages 12-17), 54% have difficulty getting needed mental health care
- More than 70% of teens have used AI chatbots and more than 50% use it regularly for support.

Previous Projects

- Stanford - AI chatbots can lack effectiveness and can have dangerous responses

METHODS

Materials

- Computer
- Google Sheets
- Google Docs
- Access to AI - ChatGPT, Google Gemini, Anthropic Claude

Controlled Variables

- Emotional scenarios - wording, style, spelling, etc.
- Chatbot settings
- How the scenario is presented
- Timeframe - updates don't shift results

Independent Variables

- AI Chatbot tested
- Type of prompt style

Dependent Variables

- Quality and Safety of the AI responses

Bot-ting Up Emotions: How AI Chatbots Interpret and Respond to Emotionally Challenging Scenarios

PROCEDURE

- Use AI to generate 12 realistic scenarios for each category: Academic Stress, Anxiety, Friendship Issues, Family Conflict, Loneliness, Anger, and Sadness/Loss
- Submit the scenarios (84 in total) to a AI chatbot and record responses in a spreadsheet
- Repeat the previous process three times for each chatbot (ChatGPT, Gemini, Anthropic Claude)
- While filling out the spreadsheet, rate the AI's responses on
 - Empathy (1-4)
 - Helpfulness (1-3)
 - Problem-solving (1-3)
 - Clarity (1-3)For a **total effectiveness score**
- After recording and evaluating all of AI's responses, run them through another AI to see if the **AI's evaluation of the responses matches up with the human evaluation**

AI Response	Empathy	Chat_Empathy	Helpful ness	Chat_Helpful ness	Problem -solving	Chat_Prob_so lve	Clarity	Chat_Clarity
It's normal to feel stressed. Take a few deep breaths, rev	4	3	3	3	3	2	3	3
Take a breath and focus on what you do know. Shift from	4	3	3	3	3	3	3	3
Try a quick reset: list everything you must do, then pick t	1	2	3	3	3	3	3	3
Break tasks into small chunks, set a daily study block, ar	1	2	3	3	3	3	3	3
Keep a tight weekly plan, break tasks into small daily goi	1	2	3	3	3	3	3	3
Try triaging your workload: list everything, mark what's u	1	3	3	3	3	3	3	3
Take a deep breath, break it into tiny chunks, tackle one	1	3	2	3	2	3	3	3
Break it down: make a mini schedule, tackle one task at	1	3	2	3	2	3	3	3
Take a hard pause: step away for even 15-20 minutes--	1	3	3	3	2	3	3	3
Break tasks into tiny chunks, use short focused sprints (	1	2	2	3	2	3	3	3
Start by prioritizing tasks--focus on what truly needs to t	1	2	2	3	2	3	2	3
Prioritize tasks by urgency, break work into small, manag	1	3	3	3	3	3	3	3
Focus on listening more than speaking--ask simple que	1	3	2	3	2	3	3	3
Focus on small, manageable steps: start with brief intera	1	3	2	3	2	3	3	3
Focus on small, manageable steps: give yourself permis	1	3	3	3	3	3	3	3
Start small: practice with a friend or in front of a mirror, f	1	3	2	3	2	2	3	3
Start small: focus on brief, low-pressure interactions. Pre	2	3	3	3	3	3	3	3
Set boundaries: limit your time, take breaks, and focus o	1	2	3	3	2	3	3	3
Totally get that--take it slow, don't overthink every word,	2	4	2	3	2	3	3	3
Start small: set tiny goals, like saying hi or asking one sir	1	3	3	3	2	3	3	3
Focus on grounding yourself first: take a few slow breath	1	3	3	3	3	3	3	3
Focus on small, manageable steps: take slow breaths, r	1	3	3	3	3	3	3	3
Focus on shifting attention outward--listen, observe, anc	1	3	3	3	3	3	3	3
It's okay to honor your limits. Try smaller gatherings, tak	2	4	3	3	3	3	3	3
Give them some space, then reach out calmly to ask if er	1	4	2	3	2	2	3	3

Spreadsheet created by Elianna Gu using Google Sheets, 2026

Effectiveness Rubric:

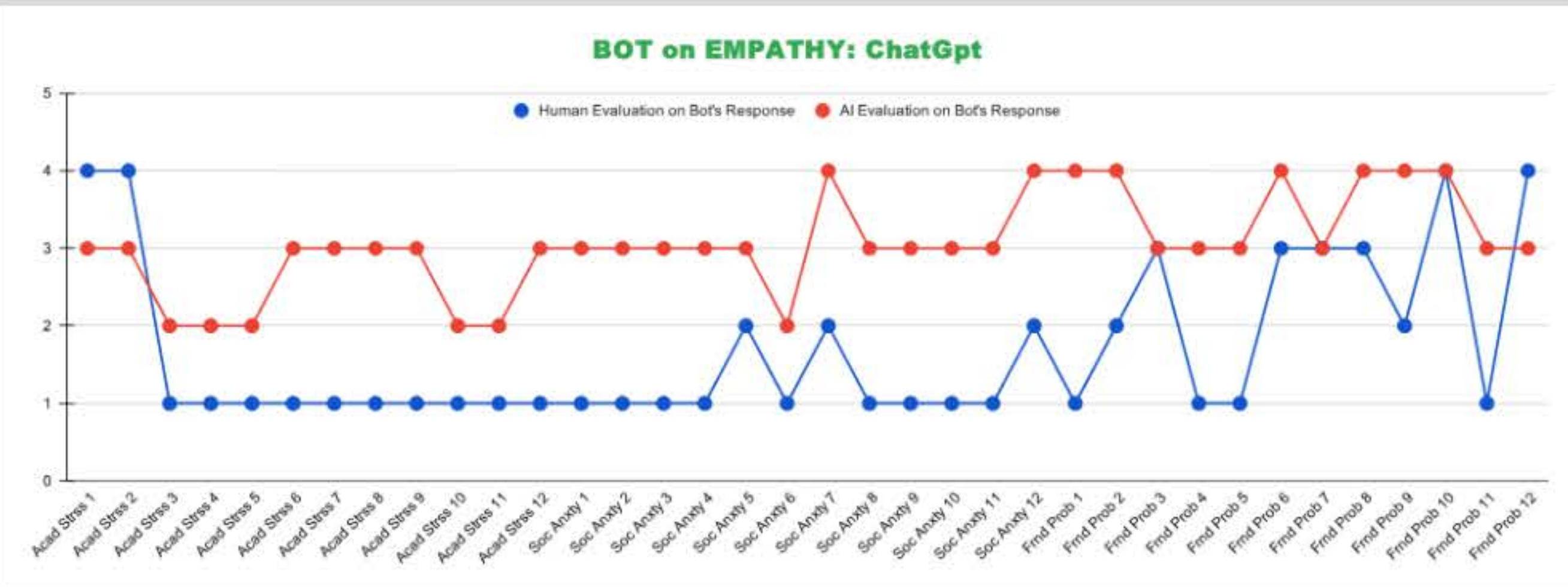
"Please evaluate how this response would sound to a real person in the following categories:" (Prompt I gave AI when having it evaluate other AI responses)

- Empathy: rate from 1 to 4 (1 = least empathetic, 4 = most empathetic)
- Helpfulness: rate from 1 to 3 (1 = least helpful, 3 = most helpful)
- Problem-solving: rate from 1 to 3 (1 = weakest, 3 = strongest)
- Clarity: rate from 1 to 3 (1 = least clear, 3 = most clear)"

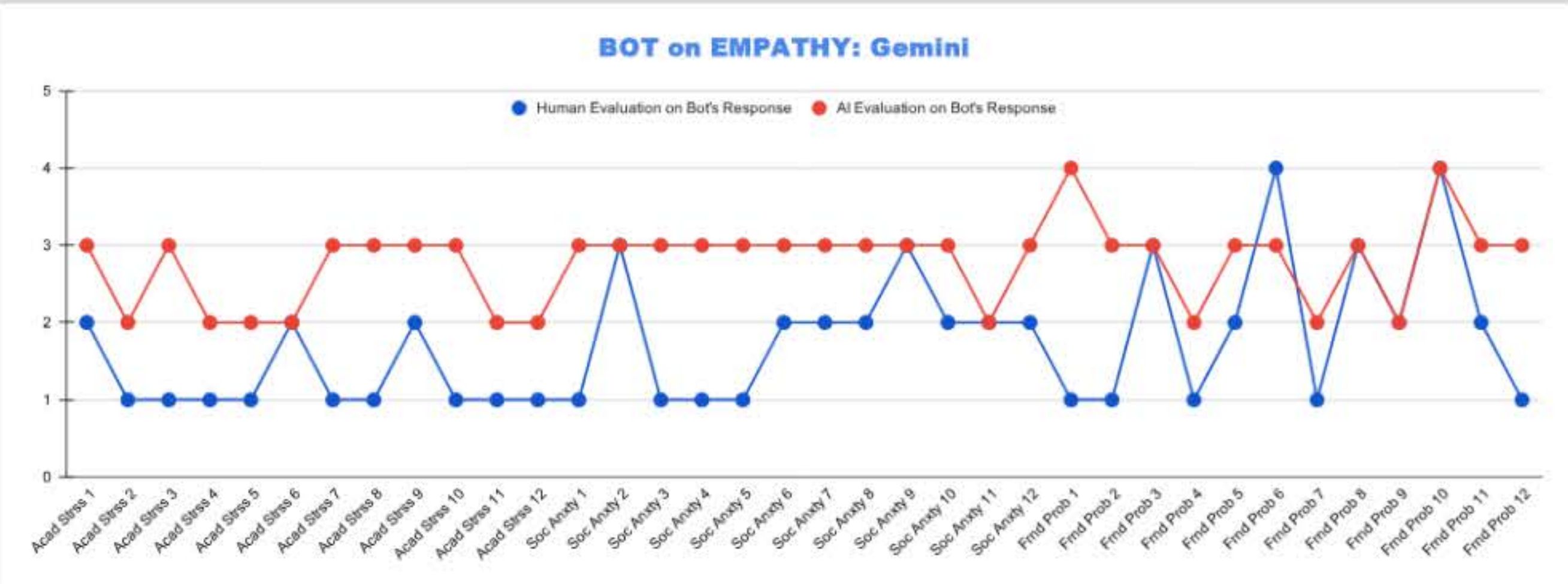
RESULTS

		ChatGpt		Gemini		Claude	
	Average of Evaluation Points	Human Evaluation on Bot's Response	AI Evaluation on Bot's Response	Human Evaluation on Bot's Response	AI Evaluation on Bot's Response	Human Evaluation on Bot's Response	AI Evaluation on Bot's Response
EMPATHY	Ave_Academic Stress	1.50	2.58	1.25	2.50	2.33	3.08
	Ave_Social Anxiety	1.25	3.08	1.83	2.92	3.33	3.75
	Ave_Friendship Problems	2.33	3.50	2.08	2.92	3.17	3.92
HELFPFULNESS	Ave_Academic Stress	2.67	3	2.92	3	3	3
	Ave_Social Anxiety	2.67	3	3	3	3	3
	Ave_Friendship Problems	2.83	3	3	3	3	3
PROBLEM SOLVING	Ave_Academic Stress	2.58	2.92	2.83	3	2.92	3
	Ave_Social Anxiety	2.5	2.92	3	3	3	3
	Ave_Friendship Problems	2.75	2.58	2.92	2.92	2.92	3
CLARITY	Ave_Academic Stress	2.92	3	3	3	3	3
	Ave_Social Anxiety	3	3	3	3	3	3
	Ave_Friendship Problems	3	3	3	3	3	3
	Average of All responses	2.50	2.97	2.65	2.94	2.97	3.15

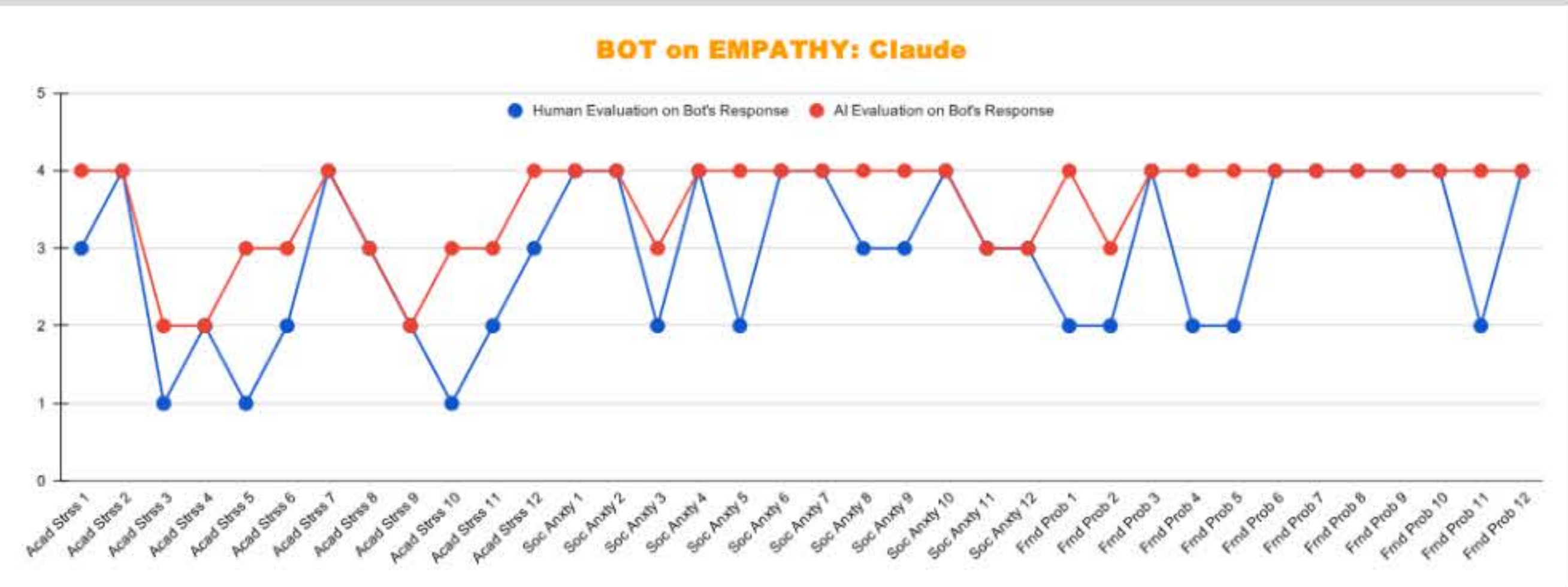
Data Table created by Elianna Gu using Google Sheets, 2026



Graph created by Elianna Gu using Google Sheets, 2026



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The **AI and human evaluation** of the chatbots' responses to the scenarios **did not vary significantly** in the categories of **Helpfulness, Problem Solving, and Clarity**. However, it **differed in the category of Empathy** which is why I will only be showing charts **comparing the two evaluations** (human and AI) in this category.

A1	I am stressed about tomorrow's big test.	Neutral Short Short
A2	Despite studying throughout the week, I still feel unprepared and increasingly anxious about the upcoming exams.	Neutral Medium Medium
A3	Managing several assignments, studying for demanding exams, and preparing ongoing projects has become increasingly exhausting, leaving me feeling consistently overwhelmed by the workload and unsure how to keep everything organized.	Neutral Long Long
A4	I can't keep up with homework deadlines.	Formal Short Short
A5	Balancing my coursework while preparing for upcoming examinations presents a significant challenge and requires careful focus and discipline.	Formal Medium Medium
A6	Attempting to meet simultaneous deadlines for homework, major projects, and ongoing exam preparation has resulted in sustained mental fatigue, leaving me feeling significantly stressed and increasingly strained as I work to manage all academic expectations.	Formal Long Long
A7	Bro, this homework is killing me right now.	Slang Short Short
A8	I'm lowkey stressed trying to finish all these assignments and study for exams at the same time.	Slang Medium Medium
A9	Man, juggling all these projects, piles of homework, and nonstop study sessions every single day has me totally wiped out, stressing hard, and feeling like my brain's running on absolute fumes at this point.	Slang Long Long
A10	Studying, homework, and projects are draining, making focus really tough.	Mixed Short Short
A11	I can't handle all the work piling up; it's making me anxious and mentally exhausted constantly.	Mixed Medium Medium
A12	Every day is packed with homework, studying, and project deadlines, leaving me stressed, tired, and overwhelmed beyond what I thought I could handle.	Mixed Long Long

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S1	I get nervous talking to new people.	Neutral Short Short
S2	Being around other people makes me anxious and causes me to overthink nearly everything I say or do.	Neutral Medium Medium
S3	Social events and large groups often overwhelm me, making me freeze up and feel tense throughout the entire experience, as I struggle to stay comfortable and navigate the constant pressure of interacting with many people at once.	Neutral Long Long
S4	I feel awkward speaking in front of strangers.	Formal Short Short
S5	Initiating conversations with unfamiliar individuals consistently induces considerable anxiety and discomfort, making social interactions particularly challenging to navigate effectively.	Formal Medium Medium
S6	Attending parties or social gatherings often leaves me mentally exhausted, tense, and acutely self-conscious about my behavior, as I struggle to maintain composure and navigate the complexities of interacting with multiple individuals simultaneously.	Formal Long Long
S7	Lowkey talking to strangers is hella stressful fr.	Slang Short Short
S8	I get major anxiety when I have to talk to new people at events or in class.	Slang Medium Medium
S9	Walking into crowded rooms, I totally freeze up, start overthinking everything, and feel super awkward, making it really hard to chill out or even talk to people without stressing out.	Slang Long Long
S10	Being around strangers makes me anxious and overthink everything.	Mixed Short Short
S11	I often feel self-conscious and tense in social situations, worrying about how others perceive me constantly.	Mixed Medium Medium
S12	Big groups or social gatherings totally drain me, making me super self-conscious and anxious about every word I say or move I make, like I'm constantly overthinking how everyone else sees me.	Mixed Long Long

Data Table created by Elianna Gu using Google Sheets, 2026

FR1	My friend has been ignoring me lately.	Neutral Short Short
FR2	Recently, I feel left out in my friend group and don't know why.	Neutral Medium Medium
FR3	I often feel left out of my friends' activities, which leaves me experiencing persistent loneliness and sadness, as I struggle with the sense of exclusion and the impact it has on my daily mood.	Neutral Long Long
FR4	I can't seem to talk to my best friend properly.	Formal Short Short
FR5	Misunderstandings with friends have made me feel uneasy and concerned about my relationships. Recent changes in my friendships have resulted in feelings of distance, misunderstanding, and	Formal Medium Medium
FR6	disconnection, leaving me struggling to relate to individuals I was once close to and affecting my sense of social stability.	Formal Long Long
FR7	Bruh, my friends keep ghosting me and it's annoying.	Slang Short Short
FR8	My friends have been ignoring me, and lowkey it makes me feel stressed and sad.	Slang Medium Medium
FR9	Lately, I've been feeling totally left out and ignored by my friend group, and it's super frustrating and upsetting, like no matter what I do, I just can't catch a break with them.	Slang Long Long
FR10	Honestly, I feel upset when friends leave me out.	Mixed Short Short
FR11	Friendship issues I'm worried about losing connections with my friends; the distance makes me feel lonely and anxious.	Mixed Medium Medium
FR12	Friendship issues Changes in my friend circle, constant miscommunications, and feeling left out make me feel disconnected and sad, leaving me unsure about my place and how to navigate my social life right now.	Mixed Long Long

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CONCLUSION

Some LLMs (Large Language Models), or AI chatbots, are able to positively respond to emotionally challenging scenarios.

The total effectiveness scores (calculated by averaging criteria: human+AI evaluation) are as follows: ChatGPT - 2.7, Gemini - 2.8, & Claude - 3.1.

Real-World Applications

Pros of Using AI:

- Fast, very accessible
- Clear and structured responses
- Provides helpful and practical solutions

Cons of Using AI:

- Can lack empathy
- Communication style greatly affects responses
- Is not always accurate

CITATIONS

Andoh, E. (2025). Many teens are turning to AI chatbots for friendship and emotional support. Apa.Org. <https://www.apa.org/monitor/2025/10/technology-youth-friendships>

Tropiano, D. (2025, September 9). Psychologist urges caution when turning to AI for emotional support | ASU News. Asu.Edu. <https://news.asu.edu/20250909-science-and-technology-psychologist-urges-caution-when-turning-ai-emotional-support>

Wells, S. (2025, June 11). Exploring the dangers of AI in mental health care | stanford HAI. Stanford.Edu. <https://hai.stanford.edu/news/exploring-the-dangers-of-ai-in-mental-health-care>